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ABSTRACT

Various learning difficulties are encountered by nontraditional students. Many are the result of problems in encoding (learning) of data, as well as retrieval of that information when needed. A review of literature showed that nontraditional students can learn, although it may take extra effort on their part to regain their skills in cognitive processing, learning, and memorization. Additional time for processing information, however, may result in greater short-term and long-term gains, and prior vocabulary knowledge may be helpful to nontraditional students. Universities can help to meet the needs of nontraditional students by establishing support groups and holding seminars for them. The literature also contains studies showing that older adults have significantly slower retrieval of information rates. The literature also shows that the use of mnemonic strategies can help older adults to improve their memory skills, as can paraphrasing. The RARE ("Review, Answer, Read, Express") and the SQ3R ("Survey, Question, Read, Recite, Review") methods may be helpful for older as well as younger learners. Based on the literature reviewed, the conclusion was reached that both decay and disuse hinder the encoding and the retrieval of information, but that persistence and hard work can help nontraditional students succeed. Universities could help such students by establishing courses to help them polish study skills and overcome deficits in subject areas, such as mathematics or language skills. (Contains 10 references.) (KC)

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Problems in Encoding and Retrieval Encountered by Non-Traditional Students

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Abstract

Various learning difficulties are encountered by non-traditional students. Many are due to problems in encoding (learning) of data, and also the retrieval of that information when needed. This paper will focus on these difficulties, and help non-traditional students in understanding ways to recognize possible problems, and by doing so, improve their possibilities for success in a university setting. The literature reviewed in preparing this paper addresses the issue of whether these learning problems develop due to natural aging (decay), or through lack of use of the brain (disuse), or possibly from both.

Problems in Encoding and Retrieval Encountered by Non-Traditional Students

A vast amount of research has been done on the problems of non-traditional students returning to college after an extended period of time. For the purposes of this paper, the definition of non-traditional student will be any student who has reached the age of over 25, and has been out of school for 5 years, or more.

This inactivity of the mind, in an educational setting, can be a major barrier to the returning student. This can result in lost study skills, and atrophy of encoding, and retrieval skills, needed to learn, and take tests. Decay, and disuse, also cause a loss of information from prior schooling, which is needed for properly formatted college level papers, and proper English usage. Higher level math, and sciences, are built on the lower level math, or science, obtained in prior education. This posture suggests that for many returning students courses to make up for deficits in these areas may be necessary.

Decay

Ratner (1987) suggests that memory decline associated with increasing age, may result as much from cognitive demands, as from biological determinations. Using these conclusions then, the memory differences between the old, and the young, may have been over-attributed, perhaps, to the natural aging processes. As shown in table one, recall differed considerably between three groups, with the college young recalling more than both the old, and the non-college young (Ratner, 1987).

INSERT TABLE 1 HERE

The biological concept is that if neurons are not used, they become dormant, and eventually die of disuse. Many non-traditional students return for their graduate degree after many years of stagnation in the area of structured learning. If the biological theory were totally correct, these students would not be able to revive their learning skills, and complete their higher education. Several studies follow that lend support to the fact that non-traditional students can, and do

learn, although it may take extra effort on their part to regain their skills in cognitive processing, and in learning and memorization.

Additional time for processing information may result in greater short term, and long term gains. Also indicated were that prior knowledge of words and verbal fluency may be an influencing variable (Shaughnessy & Cockrell, 1984). Non-traditional students do, it would seem from this study, obtain the same information, but with a greater investment in time, and mental energy.

Several factors enter into a universities institutional environment in terms of it's capacity to meet a number of individual personal needs. Included are age, previous schooling, life experiences, and cultural differences (Mahan & Lacefield, 1988). The changes needed to satisfy these needs can be beyond the scope of some universities, but support groups for non-traditional students, and university learning programs, or seminars, can aid in this endeavor.

Experiments conducted by Shaughnessy & Reif, (1987) gave a certain amount of believability to the old saying that you can't teach old dogs, new tricks. The researchers called this loss of cognitive memory, the

decay factor, which through the use of survey instruments showed significant difficulties in the ability to encode data in older non-traditional students. This decay factor makes recall appear to require either more effort, or deeper, and more extensive processing during learning (Shaughnessy & Reif, 1987).

Retrieval

Comparing younger, and older adults, on the speed and accuracy on physical features of a word (word encoding), accessing the name of a word (lexical access), and retrieval of information about a word (semantic memory access), showed results of significantly slower retrieval rates for older adults. This leads to longer processing times during cognitive learning processes. "The slower retrieval speed of elderly adults may limit the efficiency of their working memory operations" (Petros, Zehr, Chabot, 1983 p.492).

A common element in all various definitions of learning is that change will take place in conjunction with learning (Roundtree, & Roundtree, 1987). To both the traditional, and non-traditional student, this change

is the reason they have entered the academic world. While it is true, according to most researchers, that non-traditional students have a harder time with memorization, it may also be true that with proper motivation, and more effort, this problem can be overcome. This could account for the fact that some motivated non-traditional students attain better GPA's than traditional students who are too busy with fraternity/sorority life, sports, parties, and peers in general to have time to study.

Adjunct Aids

In a review of the literature examining adult age differences in the use of mnemonic strategies, researchers concluded that many older adults can learn to improve their memory skills. In 14 of 17 studies the results suggested that the use of mnemonics improved both the paired, and the list learning performances of older adults, when compared to no-training control groups (Rybash, 1986). This includes use of three by five cards, or word association, for memorized fact retrieval. One mnemonic used frequently by students is using the first letter of a line in a list of things to memorize, and make a word of them. This is called an

acronym mnemonic device.

Eg: A question such as, (What are the three main groups of hormones in the human body?), would generate a list which would look similar to this.

#1 Androgens

#2 Progestins

#3 Estrogens

This A.P.E. is associated with the groups of hormones, and facilitates the remembering needed to retrieve this information for a test.

Another mnemonic which can aid in recall is the use of a learning strategy. One learning strategy is the use of paraphrasing, which is putting an idea into one's own words using shorter patterns of thought. Paraphrasing is extremely helpful in a situation where ideas instead of listed facts need to be assimilated. By putting the idea in your own words it will make more sense to you, and also be easier to retrieve.

R.A.R.E. is another which stands for Review each question at end of each chapter. Answer all questions already known. Read the selection. Express the answer to the remaining questions. This technique is useful for

reading comprehension, and emphasizes reading for a specific purpose, such as answering questions on a test at some future time.

The SQ3R method is another way to process information, and is well known to psychology students.
S= Survey--Look ahead at content of material
Q= Question--formulate questions before and as you read.
R= Read--through the material normally.
R= Recite--Verbalize the material to yourself.
R= Review--Go over the material several times before the test.

By stressing the independent adult learner, either in a group setting, or individual setting, Brookfield (1984) feels that this can incorporate community concepts [cultural ideas] with academic learning. In this sharing of knowledge with other inquiring minds it exemplifies all that is best in the humanistic process of adult teaching, and learning.

There are several reasons for adults to return to lifelong learning, and these include family backgrounds, teachers, schools, public libraries, occupations, and the exchange of friends (Santrock, 1985). One of the reasons for returning to a learning situation, and one

that is increasing, is that there is a decline in the old traditional high paying industrial jobs, and an increase in the low paying service and information systems positions. Education is to the non-traditional student a way to maintain their standard of living, and to attain a new and hopefully improved status in life.

Conclusion

Is it decay, or disuse, which causes problems, in encoding and retrieval of information, for non-traditional students. The information from sources studied for this paper lead us to the conclusion that it is both decay, and disuse, that hinders both the encoding, and the retrieval of information.

The studies listed in this report are just a few of the research studies on older adult learning, and most of those point out that adults do have a difficult time in regaining their learning skills. Also illustrated is the additional motivation, and additional time to memorize, and recall stories, or academic facts.

To non-traditional students who are returning to school after long periods of being out of the academic mode, skills needed for academic survival must be

reviewed, and polished. Shaughnessy (1990) has written a paper on various weaknesses which can be found in a person's learning strategies, and alternatives are suggested to correct the situation. A quote by Calvin Coolidge, from this article, exemplifies that persistence is a necessary personality factor needed by non-traditional, and other students (Shaughnessy, 1990).

> Nothing in the world can take the place of persistence. Talent will not; Nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education alone will not; the world is full of academic derelicts. Persistence and determination alone are omnipotent.

This illustrates that the determined, and hard working non-traditional student can succeed. Most Non-traditional students have either been displaced in the job market, or are realizing that it takes an education to get ahead. This creates greater motivation, and the need to succeed. As there is a need for entry level courses for freshmen students, there is a like need for non-traditional students. Courses could be tailored to

the individual student, who has a deficit in certain areas of learning.

INSERT TABLE 2 HERE

A course curriculum for a general study course, for returning non-traditional students, as seen in table two, would give the student help in reestablishing lost, or decayed skills in learning. This curriculum can be altered for the individual who may not need help in math, but needs help in English, or in library skills.

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Table 1

Mean Proportion of Information Units Reported

Age/Student group & Condition	Story Type: Procedural	Temporal
Old		
Verbatim	.663	.601
Control	.520	.513
Non-college young		
Verbatim	.795	.671
Control	.612	.644
College young		
Verbatim	.918	.913
Control	.821	.816

Table 2

Re-Entry Course Curriculum 16 weeks

Remedial Course Needed	Instruction Hours
Writing Papers	12 Hours
Format, Grammar, Computer skills	
Algebra Preparatory	12 Hours
Skills for College algebra	
Study habits	12 Hours
Mnemonics, Reading Comprehension, Concentration	
Library resources	12 Hours
Eric, Abstracts, ILL, Infotrac, Computer systems	
Total	48 Hours